

**STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION**

STAFF REPORT FOR REGULAR MEETING OF MAY 31, 2002

Prepared May 2, 2002

ITEM: 16

SUBJECT: Reissuance of Waste Discharge Requirements for the Abalone Farm, Inc, San Luis Obispo County--Order No. R3-2002-0057, NPDES Permit No. CA0049344

KEY INFORMATION

Location: Near Cayucos at Highway 1 and Villa Creek Road in San Luis Obispo County
Discharge Type: Flow-through seawater from abalone growing tanks
Current Flow Rate: 6.8 million gallons per day (MGD) average
Treatment: 3/8" slotted screens for solids removal
Disposal: Pacific Ocean
Existing Order: WDR Order No. 94-02 (NPDES Permit No. CA0049344)

SUMMARY

The Abalone Farm Inc. operates an abalone growing facility near Cayucos in San Luis Obispo County. The facility produces an average of 150,000 pounds of abalone annually. Discharge of flow-through seawater from the facility is currently regulated by Order No. 94-02 (NPDES Permit No. CA 0049344), which was adopted by the Regional Board on March 11, 1994.

Proposed Order No. R3-2002-0057 (Attachment 1) is for the reissuance of the Abalone Farm's NPDES Permit. The proposed Order is based on both the Ocean and Basin Plans as they apply to aquaculture facility discharges. The proposed Order continues all existing permit conditions. Some effluent limitations have been added or lowered because of revisions to the Ocean Plan. A prohibition of discharge of exotic species has been added. The Abalone Farm consistently complies with all effluent limitations. Monitoring for wastewater constituents has been reduced from monthly to quarterly. A requirement to sample for Ocean Plan Table B constituents once during the permit cycle (once every five years) has been added.

DISCUSSION

General Background

Facility Description – The Abalone Farm, Inc. (hereafter “Discharger”) produces an average of 150,000 pounds of abalone annually and is capable of producing up to 275,000 pounds per year. The Abalone Farm’s process is described in Figure 1.

Flow - Seawater is continuously pumped through growing tanks and discharged back to the ocean through two outfall pipes (001 and 002) which discharge over a 20-foot cliff to the intertidal zone. According to the Discharger’s report of waste discharge, current flow rates vary as follows:

Outfall No.	Flow (MGD)		
	Maximum Daily	Maximum 30-day	Long Term Average
001	1.4	1.4	0.8
002	8.6	8.6	6.0

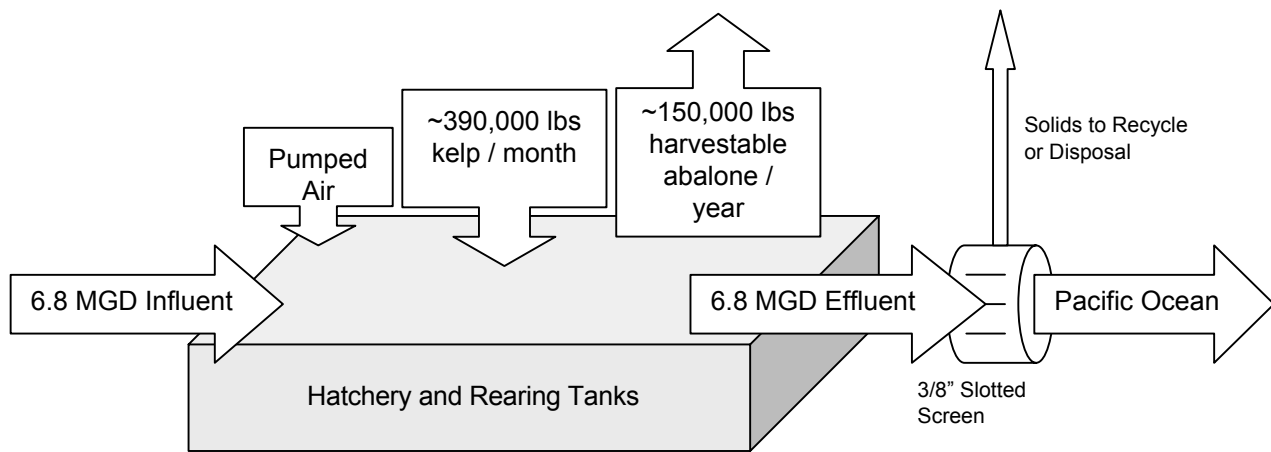


Figure 1: Simplified Process Schematic of the Abalone Farm Inc.

Source Control and Best Management Practices – In aquaculture operations, the most direct and least expensive approach to controlling pollution is through best management practices and efficient operations. The following constitute some of the Discharger's best management practices:

- Influent filter backwash is clarified and removed solids are composted.
- Density of abalone within each raceway is restricted.
- Rearing tanks are aerated to maintain elevated dissolved oxygen levels.
- Chemical use is minimized.
- Imported seed stock is frequently inspected to prevent infestation by exotic species.
- Exported seed stock is frequently inspected to prevent spread of exotic species.
- Any abalone suspected of exotic species infestation is immediately eradicated.
- Dead abalones and/or shells are removed from the flow-through system and composted or sold.
- Wastes from a small processing facility are bagged and sold to fisherman as bait.

Treatment – Treatment of effluent consists of a 3/8" slotted screen to prevent live abalone and/or shells from passing into the receiving water. Solids removed from the slotted screens are composted on site.

Existing Permit - The discharge of flow-through seawater from the Abalone Farm is currently regulated by Order No. 94-02 (NPDES Permit No. CA 0049344), which was adopted by the Regional Board on March 11, 1994 and administratively extended in April 1999. The existing NPDES permit is based on the California Ocean Plan and this Region's Basin Plan as they apply to aquaculture facility discharges to the ocean.

Compliance History – Staff measured the Discharger's compliance with effluent limitations in the existing permit by evaluating all effluent data from 2000 and 2001. No violations of any effluent limitation occurred in that period. Table 1 compares the long-term average concentration of each constituent to its respective effluent limitation:

Table 1: Comparison of effluent concentrations with effluent limitations

Constituent	Unit of Measurement	Long-Term Average Effluent Concentration ¹	Monthly (30-day) Average	Weekly (7-day) Average	Daily Maximum
Grease and Oil	mg/L	0.98	25	40	75
Settleable Solids	mL/L	0.003	1.0	1.5	3.0
Turbidity	NTU	2.5	75	100	225
Suspended Solids ²	mg/L	11	60	--	--
pH	standard units	8.3	within limits of 6.0 to 9.0 at all times		

Table 1 demonstrates that the long-term average effluent concentrations for Grease and Oil, Settleable Solids, Turbidity, and Suspended Solids are consistently well below effluent limitations. Effluent pH ranged between 7.7 and 8.5, which equates to natural fluctuations in the pH of the ocean. The difference between effluent and influent (or “ambient”) temperature is negligible.

Proposed Permit

The proposed Order continues existing permit conditions and incorporates revised effluent limitations from the Ocean Plan. Specific revisions to effluent limitations resulting from amendments to the Ocean Plan are as follows:

Constituent	30-Day Average (µg/l)	
	Existing Permit	Proposed Permit
thallium	28	4
chlorodibromomethane	--	17.2
1,2-dichloroethane	260	56
1,1-dichloroethylene	14200	1.8
dichlorobromomethane	--	12.4
heptachlor	0.00144	0.0001
heptachlor epoxide	--	0.00004
isophorone	300000	1460
N-nitrosodi-N-propylamine	--	0.76
1,1,2,2-tetrachloroethane	2400	4.6
tetrachloroethylene	188	4.0
1,1,2 trichloroethane	86000	18.8
acute toxicity	2.5 TUa	0.33 TUa

Effluent limitations under Section B.1.b of the proposed Order are based on a dilution factor of 1 part seawater to 1 part effluent.

Exotic Species - In the mid-1990's, the Abalone Farm became infested with the sabellid polychaete worm through importation of infested seed stock. The sabellid worm is a non-native species that grows on the shells of the abalone, deforms the shell, and slows its growth. The sabellid worm cannot swim, but can move from shell to shell by crawling on the seafloor. The sabellid worm can live on both dead and live abalone shells.

In 1996, turban snails in a small cove adjacent to the discharge became infested with the sabellid worm. The infestation was attributed to infested live abalone and/or shells passing out of the rearing tanks into the receiving water. The Discharger, in cooperation with California Department of Fish and Game (CDFG) and University of California at Santa Barbara, successfully eradicated the sabellid worm infestation by eliminating numerous infested turban snails.

To prevent further infestations of the biota in the receiving water, CDFG required the Discharger to place screens on their discharge (3/8" slotted screens) to prevent live abalone or shells from passing into the receiving water. The Discharger was also required to submit and follow an approved sabellid worm eradication plan. The Discharger now regularly inspects all batches of seed stock for sabellid worms prior to transferring them to the rearing tanks. Due to these measures, the Discharger has not found any sabellid worms in its

¹ The Long-Term Average is based on all effluent data from January 2000 to September 2001.

² The Suspended Solids value reported is net Suspended Solids increase, which is equal to effluent minus influent Suspended Solids concentrations.

facility for more than two years.

In California, regulatory activities related to the control of exotic species are the primarily the responsibility of CDFG. Section 15500 of the California Fish and Game Code states that:

“All government activities relating to aquaculture disease detection, control, and eradication that do not affect human health and safety are the responsibility of the department [CDFG].”

CDFG has compiled a list of diseases and parasites affecting aquaculture, which is codified in the California Code of Regulations at Title 14, Section 245. Because the list is not frequently updated, Section 245 also contains a provision for identifying those diseases and parasites that may not be on the list, but may be a threat to aquatic animal or plant life.

The Regional Board recently asked staff how the NPDES program could be used to assist CDFG to prevent the spread of exotic species from aquaculture facilities. The Regional Board is responsible for protecting beneficial uses of State waters. Since exotic species may impair marine habitat, the Regional Board is authorized to regulate the discharge of exotic species with an NPDES permit. In order to prevent future impairment of marine habitat and assist CDFG to prevent the spread of exotic species, staff believes restricting the discharge of exotic species in the proposed permit is appropriate.

Because exotic species often have no natural predators and are able to rapidly propagate in the wild, the receiving water has no “assimilative capacity” for exotic species. Allowing the discharge of any exotic species is inappropriate. In order to adequately protect marine habitat, discharge of all exotic species must be prohibited, rather than limited.

Primary regulatory authority and expertise regarding exotic species resides with CDFG. Therefore, any prohibition of discharge of exotic species must support CDFG and not supersede CDFG’s authority. Staff’s proposed prohibition A.3 recognizes this, and reads as follows:

“Discharge of any biota listed in California Code of Regulations Title 14, Section 245 (Aquaculture Disease Control Regulations), or referenced in Part a.8 of the same section, which is not indigenous to the Central Coast Region is prohibited. In accordance with Section 15500 et seq. of the California Fish and Game Code, enforcement of this prohibition must be requested by the California Department of Fish and Game.”

The Discharger currently inspects each batch of seed stock for exotic species prior to transfer to the rearing tanks. They are also required by CDFG to have each batch of seed stock that is exported from the facility inspected by CDFG staff. Staff believes these inspections should adequately monitor compliance with the proposed prohibition.

Monitoring and Reporting Program – The monitoring program for the proposed Permit requires monitoring of flow and Table A constituents of the Ocean Plan which may be present in the discharge. These constituents include Grease and Oil, Settleable Solids, Turbidity, pH, Total Suspended Solids, and Temperature. In light of the Discharger’s outstanding long-term compliance with effluent limitations for these constituents, staff believes the existing monthly monitoring frequency for these constituents should be reduced. U.S. EPA has developed a general permit for aquaculture facilities in Idaho that requires facilities with similar production rates as the Discharger to monitor each constituent quarterly. The Cultured Abalone, a facility near Santa Barbara with similar production rates as the Discharger, is required to monitor each constituent annually. Staff recommends reducing monitoring frequency for Grease and Oil, Settleable Solids, Turbidity, Settleable Solids, pH, Total Suspended Solids, and Temperature from monthly to quarterly.

The existing permit contains chemical-specific effluent limitations derived from Table B of the Ocean Plan. However, since the Discharger’s effluent is primarily seawater and minor amounts of waste food particles and abalone body waste, the Discharger has never been required to monitor

for those chemicals³. In lieu of monitoring, the Discharger has been allowed to annually certify that such constituents are not added to the waste stream, and that no change has occurred in activities that could cause such substances to be present in the waste stream. The Discharger has provided such certification every year in the life of the existing permit.

The proposed permit requires the Discharger to monitor effluent for all the Ocean Plan Table B constituents once in the life of the permit. Such data is needed to perform a statistically valid and legally defensible Reasonable Potential Analysis of the Discharger's effluent. A Reasonable Potential Analysis is needed to determine which chemical-specific effluent limitations may not be necessary in future permits.

In order to monitor compliance with the proposed prohibition of discharge of exotic species, a requirement has been added to the monitoring program that requires the results of each exotic species inspection to be reported with each monitoring report.

Fuel Storage – Staff's inspection of the facility in February 2002 revealed that a small, elevated aboveground fuel storage tank is located precariously close to an abandoned pond that drains directly to the ocean. The tank has no external protection or secondary containment, and if pushed by a vehicle could spill directly into the abandoned pond. In order to prevent such an

³ The Ocean Plan provides an alternative to monitoring for the chemicals listed in Table B of the Ocean Plan. The Ocean Plan states that:

“Where the Regional Board is satisfied that any substance(s) in Table B will not significantly occur in the Discharger's effluent, the Regional Board may elect not to require monitoring for such substance(s), provided the Discharger submits periodic certification that such substance(s) is not added to the waste stream, and that no change has occurred in activities that could cause such substance(s) to be present in the waste stream. Such election does not relieve the Discharger from the requirement to meet the objectives of Table B.”

occurrence, a provision has been added to the proposed Order that requires the Discharger to relocate the tank at least 50 feet from any steep slope or cliff, install external protection to prevent damage from moving vehicles, and install secondary containment around the tank by October 1, 2002.

SUMMARY OF RECOMMENDED CHANGES TO PERMIT

The following changes and/or additions to the existing permit are contained in the proposed Order:

- A prohibition of discharge of exotic species is added;
- Effluent limitations are added for four (4) chemical substances in accordance with the 2001 Ocean Plan;
- Effluent limitations are lowered for eight (8) chemical substances and Acute Toxicity in accordance with the 2001 Ocean Plan;
- A requirement to relocate and safeguard spills from an aboveground fuel storage tank is added;
- Frequency of monitoring for six (6) wastewater constituents is reduced from monthly to quarterly;
- A requirement to monitor the chemicals listed in Table B of the Ocean Plan once in the life of the permit has been added;
- A requirement to report the results of exotic species inspections is added.

CEQA SUMMARY

Waste Discharge Requirements for the existing discharge are exempt from the provisions of the California Environmental Quality Act (Public Resources Code, Section 21100, et seq.) in accordance with Section 13389 of the California Code of Regulations.

COMMENTS AND RESPONSES

Public notification of the Regional Board's intent to reissue the proposed waste discharge requirements was published in the San Luis Obispo County Tribune on March 13, 2002. The following parties were sent a copy of the first draft of this Order on March 6, 2002 and invited to comment.

No written comments were received from the following interested parties:

- **The Ocean Conservancy**
- **U.S. EPA**
- **U.S. Fish & Wildlife Service**
- **State Dept. of Health Services**
- **State Dept. of Fish & Game**
- **State Water Resources Control Board**
- **San Luis Obispo County Planning Dept.**
- **San Luis Obispo County Environmental Health Dept.**
- **San Luis Obispo County Tribune**

The Abalone Farm, Inc. (Discharger) submitted written comments on April 10, 2002. The Discharger's entire comment letter is attached (Attachment 2). Summaries of the Discharger's comments and staff responses are as follows:

Comment 1 – None of the toxic chemicals listed under Effluent Limitation B.1.b that are proposed to be monitored are used in abalone farming. Use of such chemicals would be detrimental to the health of the abalone. Monitoring these chemicals would be very costly. Rather than perform the monitoring, "we would prefer...to provide annual certification that we are not adding the pollutants listed in Table B of the Ocean Plan, as we have done for many years now." If the monitoring data "is deemed absolutely necessary, then the RWQCB should pay for the testing, and we will gladly provide the samples."

Staff Response 1 – Staff agrees that most of the toxic chemicals listed under Effluent Limitation B.1.b are not used in abalone farming. In order to determine which chemical-specific effluent limitations may be unnecessary in future permits, a Reasonable Potential Analysis of the Discharger's effluent must be completed. Numerical effluent data is required to perform a statistically valid and

legally defensible Reasonable Potential Analysis. Performing such monitoring once in the life of the permit is consistent with other waste discharges with similar threat to water quality and is not exorbitantly expensive. Staff's recommendation to reduce the frequency of monitoring for some constituents (monthly to quarterly) should offset the Discharger's cost for the additional monitoring.

Furthermore, such monitoring is necessary to verify the validity of the Discharger's annual certification that none of the chemicals listed under Effluent Limitation B.1.b are present in the discharge. During a routine compliance inspection in February 2002, staff learned the Discharger occasionally uses bleach to clean and disinfect portions of the facility. Bleach usage may cause minor concentrations of chlorine to be present in the discharge, which is contrary to the Discharger's certification. Staff recommends retaining the requirement to monitor the chemicals listed in Effluent Limitation B.1.b in the proposed permit.

Comment 2 – The proposed prohibition of discharge of exotic species is redundant with existing regulation, does nothing to protect the environment, and threatens the ability of the Discharger to stay in business. CDFG's approach to dealing with exotic species adequately protects the environment and allows the Discharger to remain in business. The proposed prohibition of discharge of exotic species (Prohibition A.3) should be removed.

Staff Response 2 – Comment 3 parallels Comment 2. Please see Staff Response 3 for responses to Comments 2 and 3.

William Cox, Senior Fish Pathologist and Statewide Fish Health Coordinator for the **California Department of Fish and Game**, submitted the following written comments April 18, 2002:

Comment 3: "Your proposal to list sabellid worms and other exotic species as prohibited items in the discharge permit for the Abalone Farm bothers me for several reasons. As you have correctly stated in your draft, the expertise and regulatory authority for both of these concerns

resides in Department of Fish and Game personnel and regulations contained in Title 14 of the California Code of Regulations and the Fish and Game Code. Our Department registers all aquaculturists, and attaches any conditions or constraints to those registrations, as appropriate. Conditions can and do include facility design modifications to prohibit escape of animals, and treatment of effluents to address pathogen escapement. The Department's Fish Pathologists and Biologists inspect animals transported into facilities from other states or countries for both pathogens and species identity. These importations are also permitted under the Department's discretion and review.

Requiring aquaculturists to report to the [Regional Board] on items already regulated by CDFG would constitute double regulation. This is both unnecessary and burdensome to the aquaculture business. As CDFG is also the lead agency assigned to promote and assist aquaculture, I could not recommend addition of pathogens or exotics to be included in discharge permits.

A sabellid eradication plan is already in place at the Abalone Farm, with excellent cooperation by that business in the effort. To impose further restrictions at this particular time would be inappropriate.

I appreciate your concern on this issue, but feel that sufficient regulatory authority already exists within the CDFG."

Staff Response 3 – The Regional Board is responsible for protecting the beneficial uses of State waters. Since exotic species may impair the marine habitat beneficial use, the Regional Board is authorized to prohibit the discharge of exotic species with this NPDES permit. The proposed prohibition is worded to recognize that CDFG has primary authority and expertise to regulate exotic species. The prohibition does not supersede CDFG authority or constitute redundant regulation. Any Regional Board enforcement of the prohibition must be requested by CDFG. By providing enforcement remedies that do not exist in the Fish and Game Code, the prohibition in the proposed permit supports CDFG's efforts to control exotic species. Staff believes that the threat exotic species pose to marine habitat justify the Regional Board's support. Staff recommends retaining the prohibition of discharge of exotic species in the proposed permit.

RECOMMENDATION

Adoption of Order No. R3-2002-0057

ATTACHMENTS

1. WDR Order No. R3-2002-0057 (with Monitoring and Reporting Program No. R3-2002-0057)
2. **The Abalone Farm Inc.**'s comment letter dated April 10, 2002

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